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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,757	10/19/2001	Rick C. Stevens	LMCO.009PA	9671
40581	7590	06/27/2005	EXAMINER	
CRAWFORD MAUNU PLLC 1270 NORTHLAND DRIVE, SUITE 390 ST. PAUL, MN 55120			LI, SHI K	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,757

Applicant(s)

STEVENS, RICK C.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-11 and 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (U.S. Patent Application Pub. 2003/0011844 A1) in view of Wosinska et al. (L. Wosinska et al., "Large-Capacity Strictly Nonblocking Optical Cross-Connects Based on Micro-electro-opto-mechanical Systems (MEOMS) Switch Matrices: Reliability Performance Analysis", Journal of Lightwave Technology, Vol. 19, No. 8, August 2001) and Ramadas et al. (U.S. Patent Application Pub. 2003/0039007 A1).

Regarding claims 1, 13-14 and 21, Park et al. discloses in FIG. 1 an optical communication system comprising a plurality of terminals 16, a plurality of OADMs 18 and a plurality of optical cross-connects 14. A cross-connect facilitates communication between two nodes. For example, cross-connect next to terminal F connects communication path between terminal G and OADM 18. The difference between Park et al. and the claimed invention is that Park et al. does not teach a fault tolerant optical cross-connect. Wosinska et al. teaches in FIG. 4 an optical cross-connect with protection. Wosinska et al. teaches in FIG. 4 to split input signal into two and feed the two signals to first switch (switch module at the top) and second switch (switch module at the bottom) and to combine the output of first switch and second switch using a coupler. One of ordinary skill in the art would have been motivated to combine the teaching of

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Wosinska et al. with the optical communication system of Park et al. because redundant switch protects against failure and increases system reliability. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include redundant switch module, as taught by Wosinska et al., in the optical cross connect of the optical communication system of Park et al. because redundant switch protects against failure and increases system reliability

The modified optical communication system of Park et al. and Wosinska et al. still fails to teach a self-test. However, self-test is commonly used in the art for verifying integrity of the system and isolating and bypassing failures. For example, Ramadas et al. teaches in paragraph [0051] to use self-test for diagnostics and isolating failure and switchover to a redundant module under a control processor in a redundant system. One of ordinary skill in the art would have been motivated to combine the teaching of Ramadas et al. with the modified optical communication system of Park et al. and Wosinska et al. because self-test verifies integrity of a switch module, detects failure and bypasses the failure. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use self-test to detects failure, as taught by Ramadas et al., in the modified optical communication system of Park et al. and Wosinska et al. because self-test allows a switching system to detect failure and automatically switchover from a bad module to a good module.

Regarding claims 6-7, Ramadas et al. teaches to use self-test to determine whether a module has failed.

Regarding claims 8-11 and 15-20, Wosinska et al. teaches in FIG. 4 a plurality of input fibers and output fibers. It is understood that traffic between an OXC and a node is bi-directional

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because communications are usually bi-directional such as phone conversation or Internet access. That is, input fiber 1 and output fiber 1 are connected to a first node, input fiber 2 and output fiber 2 are connected to a second node, etc.

3. Claims 2-5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., Wosinska et al. and Ramadas et al. as applied to claim 1 above, and further in view of English (U.S. Patent Application Pub. 2003/0039014 A1).

Regarding claims 2 and 3, Park et al., Wosinska et al. and Ramadas et al. have been discussed above in regard to claim 1. The difference between Park et al., Wosinska et al. and Ramadas et al. and the claimed invention is that Park et al., Wosinska et al. and Ramadas et al. do not teach a controller. It is well known in the art that switch module include controller to control the state of the connection points of a switch. For example, English teaches in FIG. 1 a switch fabric card 10 including a control traffic module 50. One of ordinary skill in the art would have been motivated to combine the teaching of English with the modified optical communication system of Park et al., Wosinska et al. and Ramadas et al. because a control traffic module controls the connection points of switch to direct signals from input ports to appropriate output port toward their destination. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a controller in each of the switch module, as taught by English, in the modified optical communication system of Park et al., Wosinska et al. and Ramadas et al. because a control traffic module controls the connection points of switch to direct signals from input ports to appropriate output port toward their destination.

Regarding claims 3-5, English teaches in FIG. 1 system controller 60 for communicating between control traffic modules of switch fabric cards. English teaches in paragraph [0018]

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system controller 60 determines which one of the switch fabric cards is fully active. When a switch fabric card fails, system controller directs the other switch fabric card to become active.

Allowable Subject Matter

4. Claims 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed 28 January 2005 have been fully considered but they are not persuasive.

The Applicant argues that the Park-Wosinska-Ramadas combination does not teach "a control circuit configured and arranged to activate one of the first and second optical switches in response to the other of the first and second optical switches conducting the self-test." The Examiner disagrees. Wosinska et al. teaches a redundant switch and to switchover to the redundant switch when one of the regular switches fails. Ramadas et al. teaches to use self-test for verifying the health of a switch. Considering the references together as a whole, the Park-Wosinska-Ramadas combination teaches that when self-test detects a failure of a working switch, a control unit is operative to switchover from the failed switch to the redundant switch, that is, to activate the redundant switch when a self-test of a regular switch fails. Therefore, the Park-Wosinska-Ramadas combination teaches the recited limitation of claim 1.

The Applicant argues that the motivation for combining Ramadas with the Park-Wosinska combination is improper. In response to the argument, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to

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produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use self-test to detects failure, as taught by Ramadas et al., in the modified optical communication system of Park et al. and Wosinska et al. because self-test allows a switching system to detect failure and automatically switchover from a bad module to a good module (see paragraph [0051] of Ramadas et al.).

The Applicant argues that the Office Action fails to show that the combination could be made with a reasonable likelihood of success. Since the references are from analogous art and one of ordinary skill would have been motivated to combine them, it is expected that there is a reasonable likelihood of success.

The Applicant argues that English fails to teach the additional limitation of claim 3. The Examiner disagrees. English teaches in FIG. 1 control traffic module 50 which is equivalent to controller of instant claim. Each switch fabric board 10 has one controller. Each controller traffic module bi-directionally communicates with the system controller. Therefore, they indirectly communicate bi-directionally with each other for establishing one of them as being active.

The Applicant argues that combination of English with the Park-Wosinska-Ramadas combination is improper because no evidence is provided to indicate that any control capabilities in the Park-Wosinska-Ramadas combination are lacking and that English's controller 60 would

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supply the missing capabilities. As indicated in Office Action, it is well known that each switch module includes controller for controlling the switch. English is cited to provide such evidence. Without a controller, a switch cannot be changed from one state to another state and become useless.

The Applicant argues that the Office Action fails to show that the Park-Wosinska-Ramadas-English combination could be made with a reasonable likelihood of success. Since the references are from analogous art and one of ordinary skill would have been motivated to combine them, it is expected that there is a reasonable likelihood of success.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
16 June 2005


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

sk 6/21/2005

REPLACEMENT SHEET

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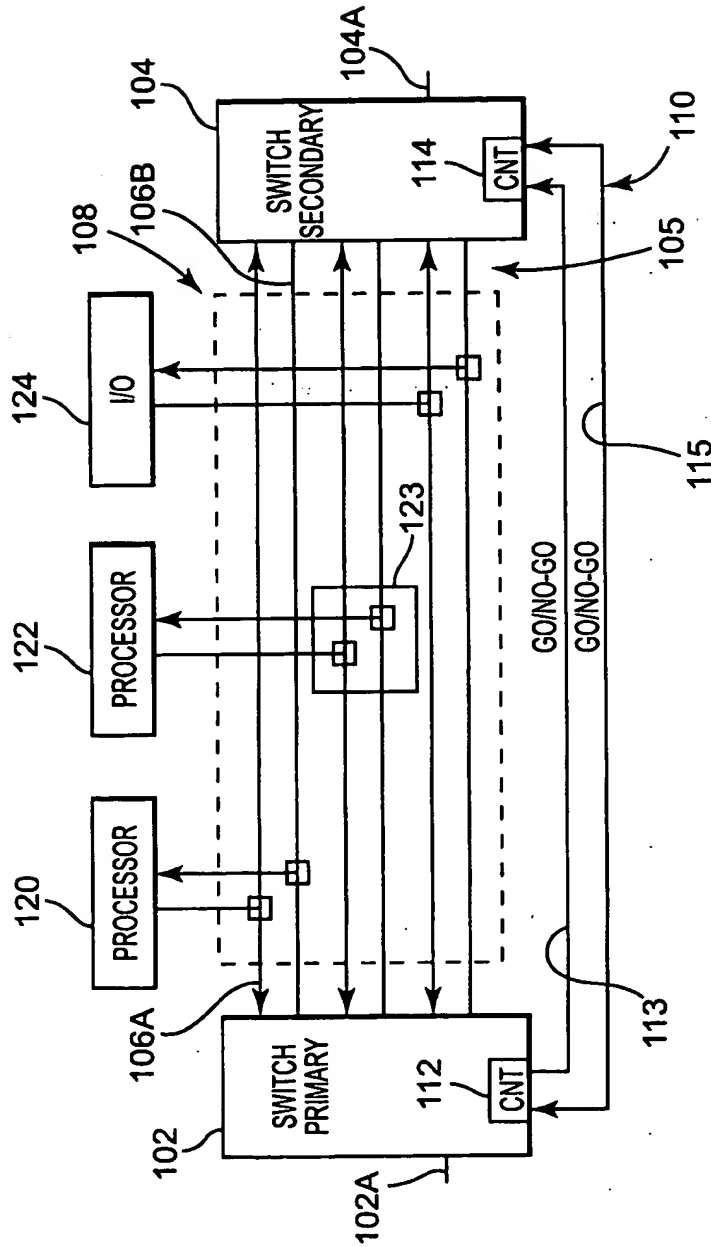


Fig. 1



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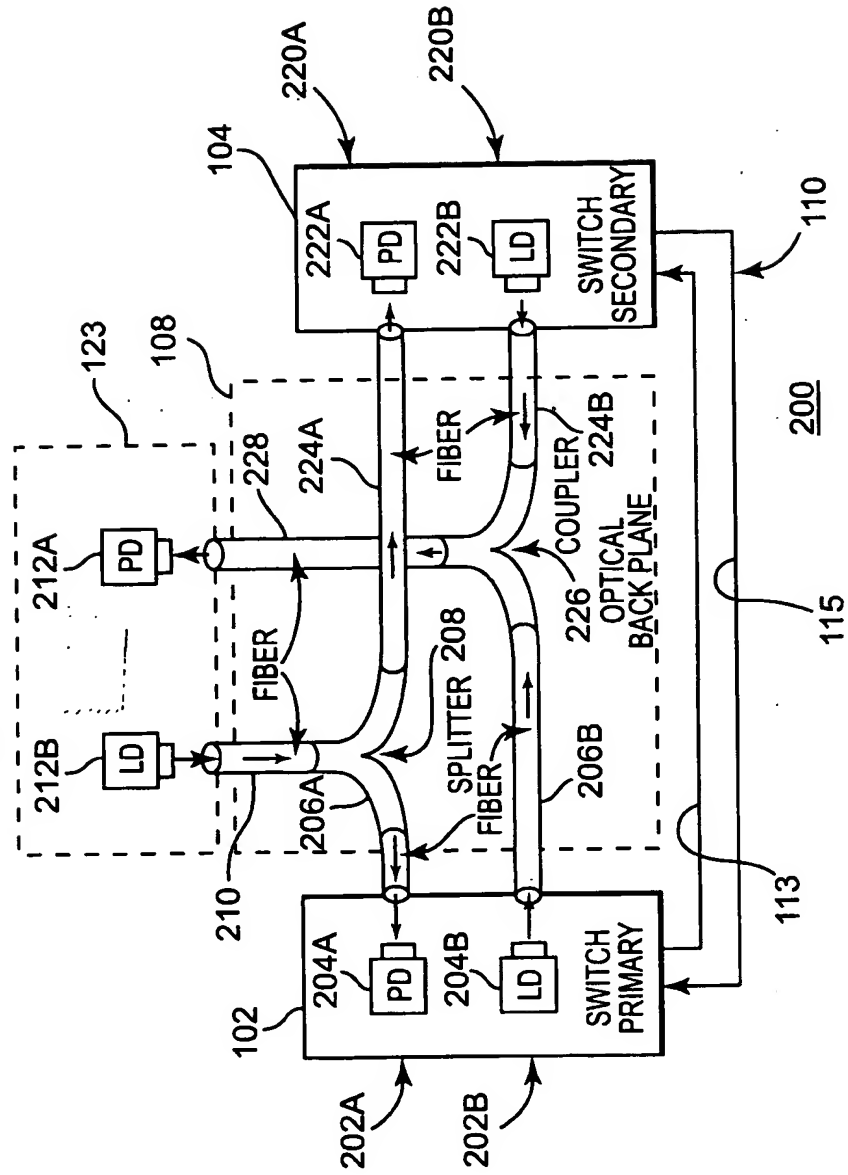


Fig. 2



REPLACEMENT SHEET

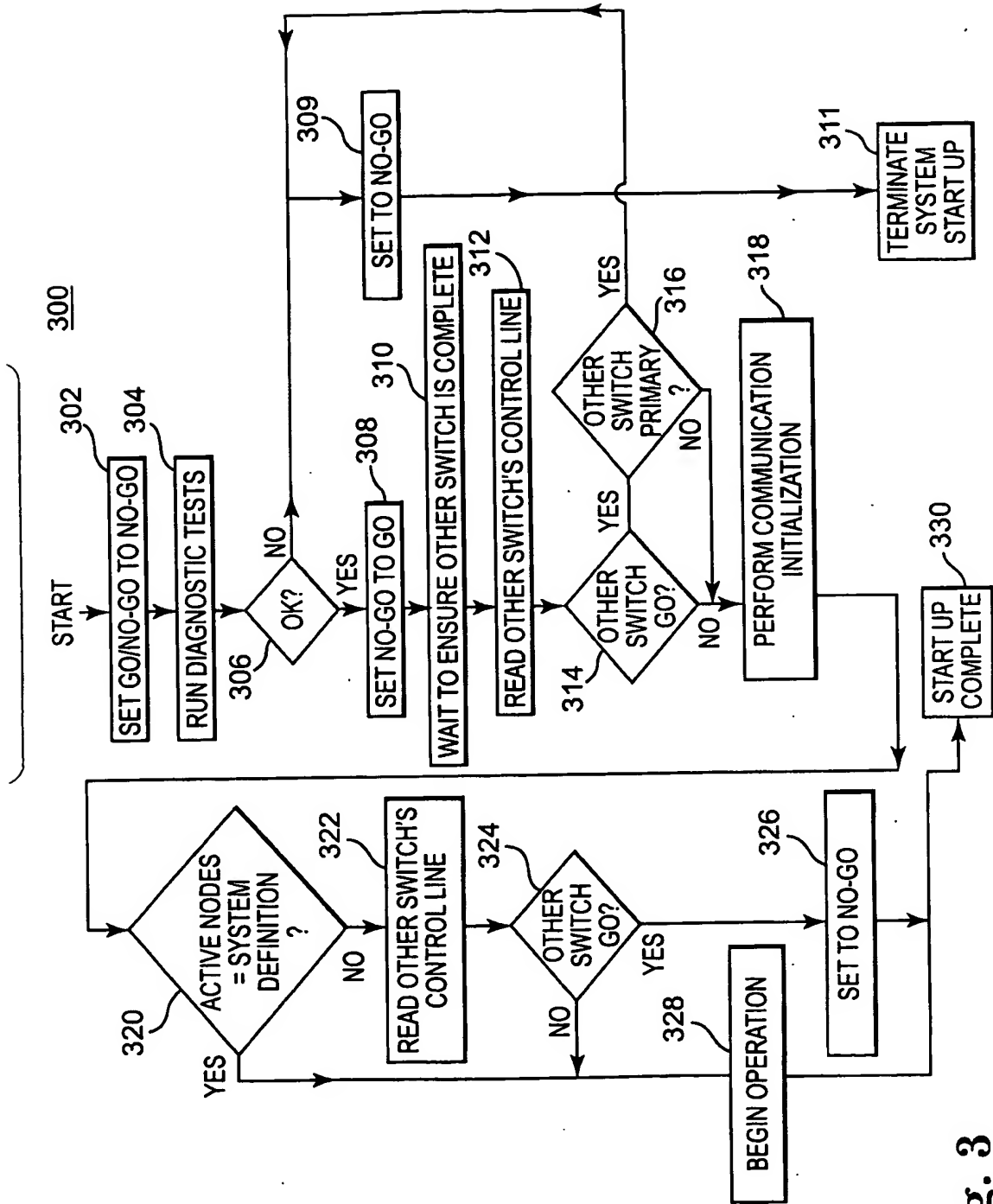


Fig. 3



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